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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,157	04/28/2005	Akio Ozasa	12480-000055/US	5698

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 8910
RESTON, VA 20195

EXAMINER	
DESAI, ANISH P	

ART UNIT	PAPER NUMBER
1771	

MAIL DATE	DELIVERY MODE
06/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/505,157	OZASA ET AL.	
	Examiner	Art Unit	
	Anish Desai	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The applicant's arguments in response to the Office action dated 09/08/06 have been fully considered.

2. Claims 1-20 are pending. Support for amended claims is found in the specification.

3. All of the previously made art rejections are maintained.

4. The obviousness-type double patenting rejections will not be withdrawn until the submission of the terminal disclaimer.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3, 6, and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Doane et al. (US 5,861,216) substantially as set forth in 09/08/06 Office Action.

Regarding claims 1 and 3, Doane teaches articles provided in which self-supporting structure formed of natural polymer has self-adherent, moisture resistant hydroxyl-functional polyester on the structure surface. The self-supporting structure of Doane is preferably a starch and polyvinyl alcohol blend in expanded form (abstract) and has self-adherent coating including a hydrogy-functional polyester thereon to be resistant against moisture (column 1, lines 14-15). Further Doane teaches that water is a typical expansion agent (column 9, lines 12-13). According to Doane, data provided

by the DOW Chemical Company (manufacturer of hydroxyl-functional polyesters) indicates the biodegradable nature of these polymers (column 5, lines 7-9). Moreover, the hydroxy-functional polyester of Doane provides substantial water resistance for the article (column 3, lines 27-29). Doane teaches that starches are preferred as natural polymers for forming a structure with sufficient structural integrity (column 7, lines 46-49).

The recitation "starch or the derivative thereof containing high-amylose starch or a derivative thereof" is interpreted as starch containing high-amylose starch **or** derivative of starch containing high-amylose starch **or** starch containing the derivative of high-amylose starch **or** the derivative (of starch) containing high-amylose starch derivative.

Although Doane does not explicitly teach the starch contains high-amylose starch, it is reasonable to presume that the starch disclosed by Doane necessarily contains high-amylose starch because like material has like property. The applicant discloses that Starch and a derivative thereof (including high-amylose starch) used as the main material of the molding material is not limited to any particular type. For instance, starch easily acquired from agricultural products worldwide as major cereals, such as potato, corn, tapioca, rice, wheat, sweet potato, etc. can be preferably used (specification, page 17). Doane also teaches starches are preferred for use as natural polymers, particularly due to ready availability and low cost. Starch is a low-cost and abundant natural polymer composed of amylose and amylopectin (column 7, lines 46-53). Further Doane discloses starches are obtained in granular form and may be

derived from cereals or grains such as corn, wheat, rice (column 7, lines 57-60). Thus, the starch and the starch derivative of Doane would contain high-amylose starch. *In re Fitzgerald* 205 USPQ 594 and *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

The recitations "article being molded, through steam expansion, from a slurry or dough molding" and "the biodegradable molded article being obtainable by heating...performed concurrently" are related to product by process claim limitation. The products by process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). The presently claimed invention is directed to a biodegradable molded article. In the presently claimed subject matter, the biodegradable molded article comprises a starch or a derivative of starch, and water (claim 1), or a starch or a derivative of starch, water, and polyvinyl alcohol (claim 3). Further a biodegradable hydrophobic plastic film is attached to a surface of

the biodegrable molded article. Doane also discloses a biodegradable self-supporting expanded structure comprising of starch, polyvinyl alcohol, and water. Further moisture resistant biodegradable hydroxyl modified polyester of Doane is coated on the biodegradable self-supporting expanded structure. Thus, the biodegradable expanded self-supporting structure of Doane is similar to the claimed biodegrable molded article of the applicant. The examiner is equating the expanded self-supporting structure and the moisture resistant biodegradable hydroxyl modified polyester of Doane as a biodegradable expanded molded article in a specified shape and the biodegradable coating film-having hydrophobicity respectively as required by the claims.

6. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doane et al. (US 5,861,216) in view of Bradt (US 5,888,599) substantially as set forth in 09/08/06 Office Action.

The invention of Doane is previously disclosed. Doane is silent as to teaching of coating film is biaxially stretched. However, Bradt teaches multi-layer lidding film and a package with the lidding film heat-sealed thereto as a cover (abstract). The multi-layer lidding film of Bradt comprises a biaxially oriented polyester film (column 3, lines 19-21). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to biaxially stretch the polyester based films of Doane because it is known in the packaging art to biaxially stretch a film that is attached to a disposable article. Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to biaxially stretch the hydroxy-functional polyester film coating of Doane, motivated by the desire to enhance the strength of said film.

7. Claims 1, 3, 8-12, and 16-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ando et al. (US 5,639,518) substantially as set forth in 09/08/06 Office Action.

Ando teaches a method for manufacturing biodegradable molded article which are decomposable by bacteria, microbes etc. in the soil (column 1, lines 5-7). The molded article of Ando is in specified shape (Figure 9). Further the molded article of Ando comprises mixture of starches and derivatives (column 9, lines 7-10), polyvinyl alcohol (column 10, lines 27-30), and water (column 8, line 62). Additionally, Ando discloses a material to be molded was prepared by placing the sheet of material 21 and soybean protein sheets 22 having water and moisture resistant properties one upon another in the order shown in Figure 8 (column 27, lines 66-67, column 28, lines 1-4). The sheet 22 of Ando reads on coating film attached to a surface of the biodegradable expanded molded article, the film being mainly made of a biodegradable plastic and having at least hydrophobicity as claimed.

The recitation "starch or the derivative thereof containing high-amylose starch or a derivative thereof" is interpreted as starch containing high-amylose starch **or** derivative of starch containing high-amylose starch **or** starch containing the derivative of high-amylose starch **or** the derivative (of starch) containing high-amylose starch derivative.

Although Ando does not explicitly teach the starch contains high-amylose starch, it is reasonable to presume that the starch disclosed by Ando necessarily contains high-amylose starch because like material has like property. The applicant discloses that

Starch and a derivative thereof (including high-amylose starch) used as the main material of the molding material is not limited to any particular type. For instance, starch easily acquired from agricultural products worldwide as major cereals, such as potato, corn, tapioca, rice, wheat, sweet potato, etc. can be preferably used (specification, page 17). Ando teaches starches such as corn starch, potato starch, rice starch, wheat starch and derivatives such as alpha starches or denatured starches of above (column 9, lines 7-10). Thus, the starch of Ando would contain high-amylose starch. *In re Fitzgerald* 205 USPQ 594 and *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

The recitations "article being molded, through steam expansion, from a slurry or dough molding" "the biodegradable molded article being obtainable by heating...performed concurrently" are related to product by process claim limitation. The products by process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art

product. *In re Marosi*, 218 USPQ 289, 292 (Fed. Cir. 1983). In the instantly claimed subject matter, the biodegradable molded article comprises a starch or a derivative of starch, and water (claim 1), or a starch or a derivative of starch, water, and polyvinyl alcohol (claim 3). Further a biodegradable hydrophobic plastic film is attached to a surface of the biodegrable molded article. Ando discloses biodegradable molded article comprising starch, derivative of starch, water, and polyvinyl alcohol. Further, the biodegradable molded article of Ando has water and moisture resistance soybean protein sheets are attached. Thus, the biodegradable molded article of Ando is similar to the applicant's biodegradable molded article.

Regarding claims 8 and 16, Ando discloses addition of glass and metal fibers to the molded article as strength adjusting materials (column 10, lines 11-13).

Regarding claims 9 and 17, Ando does not explicitly teach the expanded molded article accounts for not less than 60 weight % of total weight of the biodegradable molded article. However since the invention of Ando and the presently claimed subject matter has the same utility (i.e. biodegradable molded expanded article), it would have been obvious that the expanded molded article of Ando accounts for not less than 60 weight % of total weight of the biodegradable molded article, in order to successfully practice the instantly claimed invention.

With respect to claims 10 and 18, Ando discloses water weight % of 38.7% (Table 1), 60% (Table 5) etc. Alternatively, it would have been obvious to add the water in the amount of 20 weight % to 70 weight %, motivated by the desire to uniformly agitate and adequately mix the slurry.

Regarding claims 12 and 20, Ando teaches molded article with moisture content of 5 percent by weight (column 14,lines 26-27). Alternatively, it is known in the art to control the amount of water in the range of 3 wt% to 20 wt% in the biodegradable molded expanded (foamed) articles in order to control the strength of the foamed (expanded) article as evidenced by the Derwent abstract of JP 05-320401.

8. Claims 4, 5, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (US 5,639,518) in view of Shogren et al. (US 6,146,573) substantially as set forth in 09/08/06 Office Action.

The invention of Ando is previously disclosed. Ando is silent as to teaching of polymerization degree of polyvinyl alcohol of not less than 1000 (claim 4) and polyvinyl alcohol having saponification degree of not less than 75% (claims 5 and 13). However, Shogren teaches disposable, molded articles such as cups, fast-food packages, trays etc. (abstract) produced by starch-based backing composition. Further, the backing composition of Shogren comprises polyvinyl alcohol with degree of polymerization over 1600 (abstract) and degree of saponification of less than or equal to 95.5 (column 4, lines 29-35). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the polyvinyl alcohol with degree of polymerization of over 1600 and saponification degree of less than or equal to 95.5, motivated by the desire to obtain article with improved flexibility and increased water resistance.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (US 5,639,518) in view of Altieri (US 5,153,037) substantially as set forth in 09/08/06 Office Action.

The invention of Ando is previously disclosed. Ando is silent as to teaching of starch and a derivative thereof contains not less than 50 weight % high-amylose starch or a derivative thereof. However, Altieri teaches a biodegradable shaped products comprising an expanded modified flour products, preferably having high amylose content, and having a low density, closed cell structure with good resilience and compressibility properties. More particularly, the expanded starch products of this invention, which includes packaging products and packaging material, has at least 45% by weight amylose content (column 2, lines 60-68). Further, Altieri teaches amylose content of at least 65% by weight (column 4, line 29). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the high amylose containing starch as taught by Altieri in the invention of Ando, motivated by the desire to form a compressible and crush resistant article.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 6, 7, 11, and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4, 5, 13-16, and 18 of copending Application No. 10/505,130 substantially as set forth in 09/08/06 Office Action. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1, 6, 7, 11, and 12 encompass same subject matter as claims 1, 4, 5, 13-16, and 18 of S/N 10/505,130.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

11. Applicant's arguments filed 03/08/07 have been fully considered but they are not persuasive.

Applicant argues that Ando fails to teach or suggest that the sheets 21 and 22 are heated to, or laminated at a predetermined temperature. According to Applicant there is no motivation to heat the sheets 21 and 22 to "a temperature not less than a softening point" as recited in the amended claim. The Examiner respectfully disagrees. As set forth above in this Office Action, the arguments such heating or laminating sheets to a temperature not less than a softening point are related to process limitations whereas claims are directed to a FINAL product. The products by process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "Even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). As set forth in paragraphs 5 and 7 of this Office Action, the Examiner sees no material difference between the structure of the FINAL product of the presently claimed invention and that of Ando's invention.

Applicant argues that molded articles produced according to the teachings of Ando have a smooth, instead of irregular boundary between the sheets 21 and 22. Applicant's arguments are not found persuasive in determination of patentability

because said arguments are not commensurate in scope with the claims. There in nothing in claims that require "irregular boundary".

It is noted that Applicant has essentially argued the same points with respect to the art rejections over Doane reference as Ando's reference, namely Applicant argues that Doane fails to teach or suggests that the article is prepared by concurrently performing a seam expansion molding operation on the starch and an adhesion operation wherein the coating film is adhered to the surface of the expanded molded article. The Examiner respectfully disagrees with the Applicant for the reasons given above, namely said arguments are directed to process limitation. Additionally, it is noted that Applicant argues that the boundary surface between the film sheet and the expanded article is smooth instead of irregular. Applicant's arguments are not found persuasive in determination of patentability because said arguments are not commensurate in scope with the claims for the same reasons given above.

With respect to Applicant's arguments submitted under "ADDITIONAL COMMENTS FOR CONSIDERATION", said arguments are confusing. Applicant states, "the "starch" and "modified starch" taught by Doane and Ando correspond to the "high-amylose corn starch" recited in independent claim 1." Thus, it appears that Applicant agrees with the Examiner's rejection. Next Applicant argues that starch and modified starch as taught by Doane and Ando are not "high amylose" starches. Thus, it is unclear as to what is being conveyed by Applicant. For purpose of rebuttal, the Examiner assumes that Applicant argues that starch and modified starch taught by Doane and Ando are not high amylose starches. The Examiner respectfully disagrees

because claims only recite "high-amylose" without providing a numerical value of amount of amylose. Additionally, as set forth above (please see paragraphs 5 and 7), it is noted that both Doane and Ando essentially teaches starches derived from same materials as stated by the Applicant in the specification. Therefore, starches taught by Doane and Ando are necessarily "high-amylose" starches. Accordingly, all of the art rejections are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anish Desai whose telephone number is 571-272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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TERREL MORRIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700